CLAIMS

1. A method comprising:

partitioning each dimension in a multidimensional (MD) feature space into a plurality of intervals;

identifying an interval in each dimension that overlaps a query point;

finding one or more MD data objects coupled to the MD feature space that match all of the identified intervals; and

evaluating a first MD data object that matches all of the identified intervals to determine whether the first MD data object overlaps the query point.

2. A method as defined in claim 1, wherein each MD data object comprises a hyper-rectangle.

3. A method as defined in claim 1, wherein each MD data object is associated with a data item.

4. A method as defined in claim 3, wherein each data item comprises a media data item.

5. A method as defined in claim 1, wherein each MD data object comprises a hyper-sphere.

6. A method as defined in claim 5, wherein each hyper-sphere is associated with a data item.

7. A method as defined in claim 1, wherein the act of finding comprises:

for each interval, forming an associated data structure that indicates the MD data objects that match the interval; and

processing each data structure associated with an identified interval to produce a set of MD data objects, each MD data object in the set matching each of the identified intervals.

8. A method as defined in claim 7, wherein each data structure comprises a bit vector index.

9. A method as defined in claim 8, wherein each bit vector index comprises a plurality of bits and wherein each bit in a bit vector corresponds to a single MD data object.

10. A method as defined in claim 9, wherein a hyper-rectangle is associated with each MD data object and wherein each bit in a bit vector index indicates whether the hyper-rectangle corresponding thereto overlaps the corresponding interval

11. A method as defined in claim 8, wherein the act of processing comprises logically ANDing the bit vector indices associated with all selected intervals.

12. A method as defined in claim 1, wherein each MD data object is associated with a hyper-rectangle coupled to the MD feature space, and wherein the act of finding comprises comparing the query point with each hyper-rectangle that overlaps all of the identified intervals.

13. A method as defined in claim 12, wherein each MD data object comprises a hyper-sphere.

14. A computer-readable medium having computer-executable instructions for performing acts comprising:

partitioning each of a plurality of dimensions in a multidimensional (MD) feature space into a plurality of intervals;

for each interval, forming an associated data structure that indicates which of a plurality of MD data objects coupled to the MD feature space match the interval;

receiving a query point and selecting an interval in each dimension that is overlapped by the query point;

processing each data structure associated with a selected interval to determine a set of MD data objects; and

determining a subset of the MD data objects that overlap the query point.

15. A computer-readable medium as defined in claim 14, wherein each data structure comprises a bit vector index.

16. A computer-readable medium as defined in claim 15, wherein the act of processing comprises logically ANDing all of the bit vector indices to determine the set of MD data objects.

17. A computer-readable medium as defined in claim 15, wherein each bit vector index has a plurality of bits and each bit in a bit vector corresponds to a MD data object coupled to the MD feature space.

18. A computer-readable medium as defined in claim 15, wherein each bit vector index has a plurality of bits, each bit in a bit vector corresponds to a single hyper-rectangle and indicates whether the corresponding hyper-rectangle overlaps the interval associated with the data structure.

19. A computer-readable medium as defined in claim 14, wherein the act of partitioning comprises partitioning each dimension into a number of disjoint intervals.

20. A computer-readable medium as defined in claim 14, wherein at least one interval is bounded by two interval dividers.

21. A computer-readable medium as defined in claim 14, wherein at least one interval is unbounded in one direction along a dimension.

22. A computer-readable medium as defined in claim 14, wherein at least one interval of a first of the plurality of dimensions is bound by an interval dividers and wherein the at least one interval divider is selected in accordance with $FirstIDs_j = j*[(2*|S|)/m] + j$, where $FirstIDs_j$ represents the location of the at least one interval divider along the first dimension, m is a selected number of interval dividers along the first dimension, $1<=j<=(2*|S|)\%m$, and $|S|$ equals a number of hyper-rectangles coupled to the MD feature space.

23. A computer-readable medium as defined in claim 14, wherein at least one interval of a first of the plurality of dimensions is bound by an interval divider and wherein the at least one interval divider is selected according to $RemainingIDs_j = j*[(2*|S|)/m] + (2*|S|)\%m$, where $RemainingIDs_j$ represents the location of the interval divider along the first dimension, m is a selected number of interval dividers along the first dimension, $(2*|S|)\%m +1<=j<=m$, and |S| equals a number of hyper-rectangles coupled to the MD feature space.

24. A system comprising:

a data store containing a plurality of data items;

a computer readable medium having defined therein a multidimensional (MD) feature space coupled to a plurality of MD data objects, each MD data object being associated with a data item; and

a search module operable to:

partition each dimension in the MD feature space into a plurality of intervals;

select an interval in each dimension that overlaps a query point;

determine a subset of the plurality of MD data objects that matches all of the selected intervals; and

select a data item based on the query point and the determined subset of MD data objects.

25. A system as defined in claim 24, further comprising:

a mapping module operable to map each of the plurality of data items to an MD object coupled to the MD feature space.

26. A system as defined in claim 25, further comprising:

a shape approximater module operable to map each MD object to a hyper-rectangle coupled to the MD feature space.

27. A system as defined in claim 25, wherein each MD object comprises a hyper-sphere.

28. A system as defined in claim 27, wherein at least two hyper-spheres are not identical in size.

29. A system as defined in claim 26, wherein at least two hyper-rectangles are not identical in size.

30. A computer-readable medium having computer-executable instructions for performing acts comprising:

partitioning each dimension in a multidimensional (MD) feature space into a plurality of intervals, the feature space coupled to a plurality of MD data objects, each MD data object being associated with a data item;

identifying an interval in each dimension that includes a query point;

identifying one or more MD data objects coupled to the feature space that match all of the identified intervals; and

identifying a data item that matches the query point using the query point and the identified one or more MD data objects.

31. A computer-readable medium as defined in claim 30, wherein the act of identifying a data item comprises determining whether each MD data object associated with a data item overlaps the query point.